made of normal males with normal females under the same feeding and housing conditions as the lead poisoned pigs, and for the same reason the normal females were bred alternately to lead males and to normal males. The dosage of lead was controlled by frequent weighings in order that the general nutrition should not be seriously impaired. A total of 93 matings yielded 170 offspring. Of these, 32 matings of normal male with normal female produced 58 offspring, with an average birthweight of 81.5 gm. From 34 matings of lead male with normal female 65 young were produced with an average birthweight of 69.3 gm. Nine offspring of lead males died in the first week against 2 offspring of normal males dying in that time. Eight young of lead females were stillborn against 3 stillborn from normal females bred to normal males. From the entire series of matings the following conclusions seem to be justified: (1) In chronic lead poisoning in guinea-pigs there is a definite blastophthoric effect which can best be demonstrated upon the male germ plasm. This effect manifests itself in some instances by sterility without loss of sexual activity, by a reduction of 20 per cent. in the average birthweight, by an increased number of deaths in the first week of life and by a retardation in development such that these pigs remain permanently underweight. (2) From the apparent recovery of the germ plasm some time after stopping the administration of lead it seems that the deleterious effect must be suffered especially by that portion of the germ plasm which is undergoing maturation and not by that which is stored in the primary germinal epithelium. However, final judgment upon this point must be withheld.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

JOHN McCRAE, M.D., M.R.C.P.,

LECTURER ON PATHOLOGY AND CLINICAL MEDICINE, MCGILL UNIVERSITY, MONTREAL; SOME TIME PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF VERMONT, BURLINGTON, VERMONT; SENIOR ASSISTANT PHYSICIAN, ROYAL VICTORIA HOSPITAL, MONTREAL,

AND

OSKAR KLOTZ, M.D., C.M.,

PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, UNIVERSITY OF PITTSBURGH, PITTSBURGH, PA.

The Effect of Antibody Production of the Removal of Various Organs.—HEKTOEN and CURTIS (*Jour. of Infect. Dis.*, 1915, xvii, 409) carried on a rather remarkable series of experiments to determine the part played by certain organs in the production of antibodies. The experiments were performed on dogs immunized against rat blood, and the agglutinins and opsonins were determined. The control animals showed maximum antibody production on about the twelfth day followed by a gradual defervescence to the normal level on about the fortieth day.

Other animals, following an immunizing inoculation were subjected to various operations in which some abdominal or other viscus was removed. It was found that complete removal of the stomach, of the small intestine or of the thyroid did not interfere with the development of the antibodies studied. Removal of the pancreas, complicated by intussusception and rabies, showed lessened production of the immune substance. Simultaneous removal of the spleen and pancreas also inhibited antibody production simulating the removal of spleen alone. Removal of the small intestine and ligation of the mesenteric artery increased the latent period preceding the appearance of the antibodies. Adrenalectomy did not influence the antibody curve. The authors conclude that the production of antibodies is not influenced by certain disturbances and that their results in no way contradict the view that these mechanisms are located in the blood-forming organs.

Clinical and Experimental Observations upon the Pathology of Trench Frost-bite.—The work upon this subject was stimulated through the numerous cases of frost-bite occurring among the invalided soldiers on the continent. SMITH, RITCHIE and DAWSON (*Jour. Path. and Bacteriol.*, 1915, xx, 159) point out that this has been not uncommon in previous military campaigns, the most notable of which was Napoleon's Russian Invasion. The trench frost-bite has to do entirely with the feet, the exposed hands and face escaping. This is the result of the fact that the feet are tightly enclosed and exposed to semi-frozen mud. Experiments on frost-bite were also undertaken on animals. The essential change in the frost-bite consists in damage of the bloodvessels. After an initial constriction, the exposed vessels show cellular change in their walls which alters their function and permits an excessive amount of fluid to be poured into the surrounding tissue when the cold is removed. The injury is also accompanied by the infiltration of inflammatory cells. The involved areas also suffer the lack of nutrition from vascular constriction with sluggishness of the circulation. The lymphatics of the part are much dilated so that their function is impeded and the tissue fluids are stagnant. Diffuse hemorrhages are also commonly found. They observed that these experimental lesions were very similar to the spontaneous processes in man.

Cardiac Lesions in Goitre.—Disturbance of heart are not alone found in exophthalmic goitre, but also in those of the colloid types. In the latter, it is claimed that the heart suffers mainly from mechanical disturbances of the circulation, rather than as a result of intoxication. To all forms of these cardiac disturbances the term "Kropfherz" is given. There have been relatively few pathological examinations of the heart in goitre, although much data is at hand of clinical studies. Schantz has reported the macroscopic appearance of the heart tissues in cases of colloid goitre, but he has failed to study the tissues histologically. A fatty degeneration of the tissue has been described by several. Bircher studied the hearts of rats in which an experimental goitre had been induced by giving them water from a goitrous district.